REMARKS

Applicant thanks the Examiner for examining the application.

Claim Rejections – 35 U.S.C. § 112 ¶2

The Examiner rejected claims 50-52 under 35 U.S.C. § 112, ¶ 2, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

With all due respect to the Examiner, Applicant does not understand the Examiner's argument with regards to the lack of clarity of claims 50, 51, and 52. The Examiner states that the specification indicates that assigning tasks to an empty task queue and stealing tasks from other non-empty task queues are two different functions. However, Applicant respectfully submits that nothing in the specification prevents these two functions from being performed in concert. In other words, when assigning a task to a task queue, Applicant's claims 50-52 allow for a task to be stolen from a non-empty task queue.

The Examiner's last statement on the matter ("However, claims as recited assigning tasks by keep searching until a non empty task queue is found.", Office Action page 3) seems to simply identify a requirement of Applicant's claims without providing any information as to why this is important, or what bearing it has on the lack of clarity in terms of the Examiner's argument. Without further clarification from the Examiner, Applicant respectfully submits to being unable to better respond to this rejection. However, based on the information available to Applicant, Applicant further respectfully submits that Applicant has made a bona fide attempt to respond, and thus this Amendment and Response should not be found to be non-compliant.

Applicant respectfully requests clarification from the Examiner as to why claims 50-52, in the Examiner's opinion, do not satisfy the requirements of § 112 ¶ 2. To provide this clarification, Applicant requests that the Examiner contact Applicant's Attorney at the telephone number provided below to discuss the matter further.

Claim Rejections – 35 U.S.C. § 103(a)

The Examiner rejected claims 6, 15, 24, and 39 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,526,422 to Flood et al.

Applicant's independent claim 6 requires, among other things, assigning a task to an assigned task queue, by: selecting a task queue; determining whether the selected task queue is in a non-empty state; repeating the steps of selecting and determining until an empty task queue is found; and placing the task in the empty task queue, the empty task queue as a result being designated the assigned task queue.

The Examiner cites to col. 5 lines 61-67, col. 6 lines 5-9, 25-30, and 44-52; and col. 7 lines 34-44 and col. 9 lines 55-62 of Flood et al. as disclosing these limitations.

Applicant further notes that the Examiner equates the task queue, defined according to another limitation of claim 6, and associated with a respective worker thread according to another limitation of 6, with the worker queue 30 shown in Fig. 4C and described at least in col. 5 line 61 to col. 6 line 10 of Flood et al.

However, the citations made by the Examiner with regards to selecting such a task queue (i.e., a worker queue in Flood et al.) and then assigning tasks to it do not involve the worker queue of Flood et al. Rather, these citations to Flood et al. refer to a task group. As stated in Flood et al., "In the illustrated embodiment, the collector divides initial, statistically identifiable tasks into task groups." Col. 5 lines 51-52. "When these tasks have been divided into groups, the groups are assigned, in a manner presently to be described, to respective GC [garbage collecting] threads." Col. 5 lines 61-63. Applicants note that col. 6 lines 25-30 and 44-52, as cited by the Examiner, describe the assignment of **these groups of tasks**, not a task, to threads, not a task queue (which the Examiner equates to the worker queue taught by Flood et al.). Flood et al. goes on to state, "After a GC thread has been assigned one or more suchs static task groups, it begins performing the tasks in its group or groups. By performing those tasks, the GC thread dynamically identifies further tasks to perform." Col. 5 lines 63-67. "In accordance with the present invention, . . ., each GC thread has a respective work queue 30 to keep track of these further tasks." Col. 6 lines 5-7.

With all due respect to the Examiner, the Examiner is trying to have things both ways here. When it suits the Examiner's purposes, the Examiner considers a worker queue taught by Flood et al. to be equivalent to Applicant's claimed task queue. However, because Flood et al. does not teach or suggest a process of assigning a further task to a worker queue as is required by Applicant's independent claim 6, the Examiner then attempts to equate the group of tasks, associated with a thread, taught by Flood et al. with Applicant's claimed task queue. This is simply not logical. For purposes of the Examiner's argument, either the worker queue of Flood et al. may be Applicant's claimed task queue, or the group of tasks of Flood et al. may be Applicant's claimed task queue. The Examiner cannot choose two distinct elements of Flood et al. and, at different times, equate one or the other to the same element of Applicant's claims.

Indeed, Applicant respectfully submits that the Examiner is well-aware of this logical inconsistency. The Examiner states, in the Office Action on page 5, that "Flood discloses the step of assigning tasks to the GC threads (col. 5 lines 61-67, col. 6 lines 24-30, 44-52) but did not clearly discloses that the tasks are being directly assigned to the work queue." The Examiner attempts to resolve the inconsistency by stating that "However Flood discloses that each GC thread has respective work queue 30 (col. 6 lines 5-9, fig. 4C). It would have been obvious for one of ordinary skill in the art at the time the invention was made to recognize that assigning tasks to GC threads would also suggest assigning tasks to task queues because each GC thread performs tasks in its work queue until the queue is empty and then search other threads' queues for tasks to steal and perform (col. 6 lines 18-24)."

Applicant respectfully submits that this argument by the Examiner fails on its face. Flood et al. does not disclose that a selected task is assigned to a GC thread, but rather that many tasks are divided into groups, and then one or more **groups** of tasks are assigned to a GC thread, *see* col. 5 lines 50-52 and 61-63. The GC thread itself then identifies further tasks, and it is those further tasks that are placed into the worker queue 30 that is associated with that GC thread, *see at least* col. 6 lines 5-7. There is no search among worker queues to determine which worker queue should receive the

further task. A further task is automatically placed into the worker queue of the GC thread that identifies that further task. In other words, Flood et al. clearly teaches away from the type of selective assignment of a task to a task queue as required by Applicants' independent claim 6.

Further, all Flood et al. teaches with regards to placing initial, statically identifiable tasks into task groups, is that a collector performs this assignment of tasks, *see* col. 5 lines 51-53. Nothing in Flood et al. even remotely suggests that the collector performs a sequence of operations as required by Applicant's independent claim 6 to achievement the placement of a task. When Flood et al. does teach the assignment of something, it teaches, as the Examiner admits, that a group of tasks is assigned to a particular GC thread. The ways in which this assignment of a group of tasks is completed is nothing like what Applicant's independent claim 6 requires, because the group of tasks is not assigned to a queue, but to a GC thread.

Finally, it is impossible for one of those statically identifiable tasks from a task group to ever be placed into a worker queue, because as Flood et al. makes clear, a worker queue is populated **ONLY** with dynamically identified further tasks, *see* col. 5 lines 65-67 and col. 6 lines 5-9. Thus, despite the Examiner's assertion to the contrary, Flood et al. actually teaches away from assigning a statically identifiable task to a worker queue.

For at least any of these reasons, Flood et al. does not teach or suggest Applicant's independent claim 6. Therefore, Applicant's independent claim 6 is not obvious in light of Flood et al., and Applicant's independent claim 6 is allowable over Flood et al.

Applicant's independent claims 15, 24, and 39 all include limitations similar to those of Applicant's allowable independent claim 6. Thus, for at least the reasons given above with regards to Applicant's allowable amended independent claim 6, Flood et al. does not teach or suggest Applicant's independent claims 15, 24, and 39, and therefore Applicant's independent claims 15, 24, and 39 are not obvious in light of Flood et al. Thus, Applicant's independent claims 15, 24, and 39 are allowable over Flood et al.

The Examiner then rejected claims 1, 2, 4, 7, 8, 10, 13, 16, 17, 19, 20, 22, 25, 26, 28, 29, 31, 33, 34, 36-38, and 40-54 under 35 U.S.C. § 103(a) as being unpatentable over Flood et al., as applied to claims 6, 15, 24, and 39 above, in view of U.S. Patent No. 5,438,680 to Sullivan.

Applicant first notes that Applicant's dependent claims 7-8, 46, and 51; 16-17; and 25-26 depend from, respectively, Applicant's allowable independent claims 6, 15, and 24. Therefore, for at least the reasons given above with regards to Applicant's allowable independent claims 6, 15, and 24, Applicant's dependent claims 7-8, 46, and 51; 16-17; and 25-26 are themselves allowable over Flood et al., alone or in combination with Sullivan.

Applicant secondly notes that Applicant's independent claim 1 includes limitations similar to those limitations discussed above with regards to Applicant's allowable independent claim 6. Thus, for at least the reasons given above with regards to Applicant's allowable independent claim 6, Flood et al. does not teach or suggest Applicant's independent claim 1, and therefore Applicant's independent claim 1 is not obvious in light of Flood et al., alone or in combination with Sullivan. Thus, Applicant's independent claim 1 is allowable over Flood et al., alone or in combination with Sullivan.

Similarly, Applicant's independent claims 10, 19, 28, 33, 37, 38, 40, and 41 all include limitations similar to those of Applicant's allowable independent claim 1. Thus, for at least the reasons given above with regards to Applicant's allowable independent claims 1 and 6, Flood et al. does not teach or suggest Applicant's independent claims 10, 19, 28, 33, 37, 38, 40, and 41, and therefore Applicant's independent claims amended are not obvious in light of Flood et al., alone or in combination with Sullivan. Thus, Applicant's independent claims 10, 19, 28, 33, 37, 38, 40, and 41 are allowable over Flood et al., alone or in combination with Sullivan.

Applicant's dependent claims 2, 4, 13, 20, 22, 29, 31, 34, 36, 42, 43, 44, 45, 47, 48, 49, 50, 52, 53, and 54 depend from, respectively, Applicant's allowable independent claims 1, 10, 19, 28, 33, 37, 38, and 41. Therefore, for at least the reasons given above with regards to Applicant's allowable independent claims 1, 10, 19, 28, 33, 37, 38, and 41, Flood et al. does not teach or suggest Applicant's dependent claims 2, 4, 13, 20, 22,

29, 31, 34, 36, 42, 43, 44, 45, 47, 48, 49, 50, 52, 53, and 54, and therefore Applicant's dependent claims 2, 4, 13, 20, 22, 29, 31, 34, 36, 42, 43, 44, 45, 47, 48, 49, 50, 52, 53, and 54 are not obvious in light of Flood et al., alone or in combination with Sullivan. Thus, Applicant's dependent claims 2, 4, 13, 20, 22, 29, 31, 34, 36, 42, 43, 44, 45, 47, 48, 49, 50, 52, 53, and 54 are themselves allowable over Flood et al., alone or in combination with Sullivan.

CONCLUSION

Applicant believes this Amendment and Response to be fully responsive to the present Office Action. Thus, based on the foregoing Remarks, Applicant respectfully submits that this application is in condition for allowance. Accordingly, Applicant requests allowance of the application.

Applicant hereby petitions for any extension of time required to maintain the pendency of this case. If there is any fee occasioned by this response that is not paid, please charge any deficiency to Deposit Account No. 50-3735.

Should the enclosed papers or fees be considered incomplete, Applicant respectfully requests that the Patent Office contact the undersigned collect at the telephone number provided below.

Applicant invites the Examiner to contact the Applicant's undersigned Attorney if any issues are deemed to remain prior to allowance.

Respectfully submitted,

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